```
import cv2
img=cv2.imread("caps.jpg")
cv2.imshow("output",img)
cv2.waitKey(0)

##convertr into gray scale
import cv2
import numpy as np
img=cv2.imread("caps.jpg")
#define kernel by numpy
kernel=np.ones((5,5),np.uint8)
img_gray=cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
#blur function to blur aour image
blur_img=cv2.GaussianBlur(img_gray,(7,7),0)
#edge detector
imgcanny=cv2.Canny(img,150,200)
#dialation
imgdialation=cv2.dilate(imgcanny,kernel,iterations=1)
# opp. of dialtion i.e eroded
imgeroded=cv2.erode(imgdialation,kernel,iterations=1)
cv2.imshow("gray",img_gray)
cv2.waitKey(0)
cv2.imshow("blur",blur_img)
cv2.waitKey(0)
cv2.imshow("canny",imgcanny)
cv2.waitKey(0)
cv2.imshow("dilation",imgdialation)
cv2.waitKey(0)
cv2.imshow("eroded",imgeroded)
cv2.waitKey(0)


import cv2
import numpy as np
img=cv2.imread("caps.jpg")

#resize the image (width,height)
imgresize=cv2.resize(img,(300,200))

#crop image(height,width)
imgcropped=img[200:500,200:500]


cv2.imshow("img",img)
#cv2.imshow("imgresize",imgresize)
cv2.imshow("cropimage",imgcropped)
print(img.shape)
cv2.waitKey(0)
```

```
#shapes and text on images
#0 means black it will give the outcome of bacl screen
import numpy as np
import cv2
img=cv2.imread("cap.jpeg")
print(img.shape)
#print(img)
cv2.imshow("img",img)

#height:width
img[400:500,250:650]=255,0,0# for specific area to color
#img[:,:]=255,0,0# for whole area to color
cv2.imshow("newimg",img)
cv2.waitKey(0)

## shapes and text on images
#0 means black it will give the outcome of black screen
import numpy as np
import cv2
img=np.zeros((512,512,3),np.uint8)
print(img.shape)
print(img)
#height:width
#img[200:300,100:300]=255,0,0# for specific area to color
img[:,:]=255,0,0# for whole area to color
cv2.imshow("img",img)
cv2.waitKey(0)

#how to craete lines
#0 means black it will give the outcome of bacl screen
import numpy as np
import cv2
img=np.zeros((512,512,3),np.uint8)
print(img.shape)

# craete lines

cv2.line(img,(0,0),(300,300),(0,255,0),3)
#widthand height
cv2.line(img,(0,0),(img.shape[1],img.shape[0]),(0,255,0),3)

#rectangle
#cv2.rectangle (img,(0,0),(250,350),(0,0,255),2)
#fill rectangle
cv2.rectangle (img,(0,0),(250,350),(0,0,255),5)


#Circle
cv2.circle(img,(400,50),30,(255,255,0),4)
```

```
#put text
cv2.putText(img,"OPENCV",(300,200),cv2.FONT_HERSHEY_COMPLEX,1,
(0,150,0),3)#img
name,text,dimension,fontstyle,fontsize,colour,thickness
cv2.imshow("img",img)
cv2.waitKey(0)

#warp presperative
import cv2
img=cv2.imread("card.jpg")
width,height=250,350
pts1=np.float32([[411,4],[682,161],[169,434],[454,590]])
pts2=np.float32([[0,0],[width,0],[0,height],[width,height]])
metrix=cv2.getPerspectiveTransform(pts1,pts2)
imgoutput=cv2.warpPerspective(img,metrix,(width,height))
cv2.imshow("img",img)
cv2.imshow("output",imgoutput)
cv2.waitKey(0)

# merging the image horizontal stack
import cv2
img=cv2.imread("card.jpg")
hor=np.hstack((img,img))
cv2.imshow("horimg",hor)
cv2.waitKey(0)

# merging the image vertical stack
import cv2
img=cv2.imread("card.jpg")
ver=np.vstack((img,img))
cv2.imshow("verimg",ver)
cv2.waitKey(0)
```